Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

BOOK REVIEWS

Report of the Cambridge Anthropological Expedition to Torres Straits. Vol. II, Physiology and Psychology; Part I, Introduction and Vision. Cambridge: University Press, 1901. 140 pp., 4°.

In the preface opening this most interesting monograph Dr A. C. Haddon explains the circumstances leading to the expedition which has resulted in this account, by Dr W. H. R. Rivers, of an exhaustive examination of the vision of the inhabitants of some of the islands in the archipelago lying in and contiguous to the straits between British New Guinea and Australia.

The people inhabiting these islands are very near a state of primitive culture. The inhabitants of Murray island, where most of the investigations were carried out, were, within thirty years, considered to be in a condition of savagery. Dr Haddon's previous visits to the island and his acquaintance with the people made it easier to get into the good graces of the natives and obtain their ready assistance and coöperation in the work.

The natives of the islands are considered to be pure Papuans; and these have been described as of "medium height, fleshy rather than muscular, of sooty brown color, darker than the Malay, frizzly hair, and retreating forehead." They are of the Negroid family, resembling the people of the eastern coast of Africa opposite Aden. They are sometimes called the oriental negroes. The population of Murray island is about 450 souls. Some of the inhabitants, particularly the younger, use a kind of "pidgin" English.

Physical characters and diseases of the eyes.—With few exceptions the conjunctival coat of the eye was pigmented, sometimes diffusely, but also occasionally in patches. In some of the older men there was a marked *arcus senilis* at the base of the cornea. Opacities of the cornea were common, as the result, no doubt, of former ulcerative inflammation. No mention is made of the presence of granular lids or *trachoma*, which is a cause of so much blindness and impaired sight among other peoples, such as the Irish, the Jews, the Russians, Italians, etc., but from which the Negro in this country seems to be immune. *Pterygium* and *pinguicula*, a thickening of the conjunctiva corresponding to the palpebral fissure, and most commonly on the nasal side, was very common. Two old men were affected with cataract. No case of strabismus or cross-eyes was observed. The pupils were usually very small and for the most part situated at the center of the iris; sometimes, however, slightly to the nasal side, never to the temporal side.

Visual acuteness.—Tradition has always accredited the savage with an unusual or even an extraordinary power of vision. Much of this is undoubtedly apocryphal, but there is scarcely a doubt that the average visual acuteness of man in a savage state is greater than in a higher condition of culture. Acute vision is necessary to his existence, and he has developed it accordingly.

The examinations were made by what is known as the letter (block) **E**, devised by Snellen, each line and space of which subtends an angle of one minute, which is the accepted lowest average visual angle for Europeans. The whole letter subtends an angle of five minutes. These letters are of various sizes and are numbered in accordance with the distance at which they subtend this angle, as No. 5, five meters, No. 10, ten meters, etc.; $\frac{5}{5}$, $\frac{10}{10}$, etc., being normal vision for the average European in an average illumination within doors. This is the simplest and most easily applied method, and is to be commended to investigators on this account and because it is comparable directly with the results obtained by the methods employed by oculists everywhere.

In making the test, a card with a series of these letters, of various sizes, numbered according to the distance at which they subtend an angle of five minutes, and with the open side pointing in various directions, is placed before the person under examination. In his hand he holds a card on which there is one of these figures, and he is required to turn the card so that the direction of the open side of the letter shall correspond to that of the letter indicated by the examiner on the test card.

Coming now to results, we find that the average visual acuteness of the Murray islander (115) was $\frac{10.3}{5}$; that of the Mabiug islander (36), $\frac{11.6}{5}$; that of the Kiwai islander (19), $\frac{10.3}{5}$. Comparing these with the visual acuteness of the Heligolanders, a European people living mostly out of doors, we find that the latter has an average of only $\frac{10.3}{6}$. The picked men of the German army and navy have an average of $\frac{12.6}{6}$, slightly higher than the Murray islander. Several cases of $\frac{20}{5}$ were observed among the islanders.

Refraction of the eye.—The eyes of infants are nearly always hypermetropic, and the same condition is supposed to prevail largely among savages. Quite a large percentage of this form of refraction defect was found among the islanders, though not to such a degree as to impair their distant vision. No considerable degree of myopia, or short-sightedness, was observed among the Papuans. It can be said that, taking the same number of Europeans as they come, there would be found many cases of myopia and other refractive defects. There can be no doubt that bad vision from faulty refraction of the eye is a price we are paying for our higher civilization.

It is interesting as showing how highly the sense of sight is developed among these savages that the threshold for light and form—that is, the faintest illumination perceivable—is lower than in the cultivated man. It was also demonstrated that the adaptation of the eyes to changes from light to darkness was quicker than in the European. The author is disposed to connect these phenomena somewhat with the heavy pigmentation of the fundus of the eye in the dark races. It is a matter worthy of further investigation. The capacity to distinguish differences in brightness, as shown by a Masson's wheel, is quite as pronounced among the Papuans as among the Europeans thus tested.

In all these investigations it was especially apparent that the savage was quite as capable, or even more so, than the average European of concentrating his attention on the specific thing being done, and the author is disposed to attribute this to the absence in a greater or less degree of esthetic sense on the part of the savage who is not led away by abstract considerations and holds his attention entirely on the concrete.

Color vision.—The investigation of color vision was very thorough and the results valuable as tending to establish more certain opinions in regard to the development of the color sense. If space allowed, we should be glad to go into an exhaustive consideration of this important branch of the subject. We shall have to content ourselves, however, with a bare outline of the results obtained. The matching of Holmgren's worsteds was the method principally employed. There may be defects in this method, but it still remains the best for an examination of a large number of people as to the general sense of color perception. There is no doubt in the mind of the author that these islanders with few exceptions perfectly comprehended what was required of them in the matching.

Among 280 natives (152 men) examined there was no case of red-green blindness found. Among Europeans four per cent. of the male population are affected with this form of color-blindness. It is worthy of mention, however, that among eight men from Lifu, of the Loyalty group of islands, three were found distinctly affected with red-green blindness. On this basis, the hint is thrown out that the color-sense might be used as a means of distinguishing one race or branch from another. The really important discovery, however, was an evident weakness of perception of blue, if not a clearly-defined yellow-blue blindness, in quite a number, a form of color-blindness exceedingly rare in Europeans. All the experiments with colors seemed to show a difficulty with the blue end of the spectrum. This is also borne out by the color nomenclature (about which much is recorded in the monograph), for while there are several distinct names for red, there is no separate name for blue, the word for black often being employed for that color. Neither have they a separate word for brown; the words for red, yellow, gray, or black being used, and having reference mostly to its degree of saturation. These facts lend some plausibility to the theories of Gladstone and Geiser as to the development of the color sense. They probably have no abstract name for color, the names of the separate colors being nearly always the name of some specific well-known object of that color, as for instances, *mam* (blood) for red, *siu* (yellow ocher) for yellow, *lulam* (leaf) for green, etc. It is curious that no color is named for a flower, a custom so prevalent among the European races. The Papuan seems to have a very low threshold for red,—lower, perhaps, than the average European, while that for blue is very high. On the other hand it was revealed that blue was perceived normally in peripheral vision,—though the visual field as a whole seemed more contracted than in the average European. Contrast colors were readily perceived, as well as the color after-images, with the exception of blue, about which some were uncertain. Among color preferences red ranks the highest; green, blue, and violet being rarely chosen.

Experiments in *visual space perception*, such as estimation of length of line, bisection of lines, division of lines into three or more equal parts, estimation of vertical and horizontal lines, the Mueller-Leyer illusion, and other visual illusions, were all carried out with the same painstaking care as has marked all the other work done, and showed that, on the whole, the savages were not very far, if any, behind their European brothers in visual capacities in their broadest meaning.

Too much cannot be said in praise of the thoroughly scientific manner in which these investigations have been made, or the honesty and carefulness of their recording. The existing literature on the subject seems to have been exhausted and the bibliography is full and complete. All future work along this line can well accept this monograph as a basis, accurate and reliable. SWAN M. BURNETT.

The Ethno-botany of the Coahuilla Indians of Southern California. By DAVID PRESCOTT BARROWS. Chicago: The University of Chicago Press, 1900. 82 pp. 8°.

This memoir was submitted to the faculties of the graduate schools of arts, literature, and science, department of anthropology, University